

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the present application:

Claim 1 (cancelled)

Claim 2 (currently amended): A method for presenting analysis of ~~a plurality of~~ quantitative lipid metabolite profiles, comprising:

designating ~~the plurality of quantitative lipid metabolite profiles~~ (a) a first quantitative lipid metabolite profile from a first biological sample and (b) a second quantitative lipid metabolite profile;

identifying differences or similarities in a plurality of individual lipid metabolites between the first and second quantitative lipid metabolite profiles;

and displaying the identified differences or similarities on a heat map.

Claim 3 (original): The method of claim 2, wherein each quantitative lipid metabolite profile comprises quantitative measurements of at least two lipids and wherein the quantified measurements are obtained using an internal standard for at least one of the lipids.

Claim 4 (original): The method of claim 3, wherein the lipid metabolites are selected from the group consisting of tetradecanoic acid, pentadecanoic acid, hexadecanoic acid, heptadecanoic acid, octadecanoic acid, eicosanoic acid, docosanoic acid, tetracosanoic acid, 9-tetradecenoic acid, 9-hexadecenoic acid, 11-octadecenoic acid, 9-octadecenoic acid, 11-eicosenoic acid, 5,8,11-eicosatrienoic acid, 13-docosenoic acid, 15-tetracosenoic acid, 9,12,15-octadecatrenoic acid, 6,9,12,15-octadecatetraenoic acid, 11,14,17-eicosatrienoic acid, 8,11,14,17-eicositetraenoic acid, 5,8,11,14,17-eicosapentaenoic acid, 7,10,13,16,19-docosapentaenoic acid, 4,7,10,13,16,19-docosahexaenoic acid, 6,9,12,15,18,21-tetracoshexaenoic acid, 9,12-octadecadienoic acid, 6,9,12-octadecatrenoic acid, 11,14-eicosadienoic acid, 8,11,14-eicosatrienoic acid, 5,8,11,14-eicosicatetraenoic acid, 13,16-docsadienoic acid, 7,10,13,16-docosicatetraenoic acid, 4,7,10,13,16-docosapentaenoic acid, 9-trans-hexadecenoic acid, 9-trans-octadecenoic acid, 8-eicoaenoic acid, 5-

eicosaenoic acid, plasmalogen fatty acids, 5b-cholestan-3b-ol, 5a-cholestan-3b-ol, 5-cholesten-3b-ol, 5,24-cholestadien-3b-ol, 5-cholestan-25a-methyl-3b-ol, 5-cholestan-24b-methyl-3b-ol, 5-cholesten-24b-ethyl-3b-ol, and 5,22-cholestadien-24b-ethyl-3b-ol, each as a compound or a component of a lipid molecule.

Claim 5 (original): The method of claim 2, wherein the quantitative lipid metabolite profiles each comprise a quantified measurement of lipid in a lipid class.

Claim 6 (original): The method of claim 5, wherein the quantified measurement of the lipid in the lipid class is obtained using an internal standard for the lipid class.

Claim 7 (original): The method of claim 5, wherein the lipid is selected from the group consisting of fatty acid 16:0, 18:0, 16:1n7; 18:1n7; 18:1n9; 18:3n3; 20:5n3; 22:5n3; 22:6n3; 18:2n6; 18:3n6; 20:3n6; and 20:4n6.

Claim 8 (original): The method of claim 5, wherein the lipid is a sterol selected from the group consisting of 5b-cholestan-3b-ol, 5a-cholestan-3b-ol, 5-cholesten-3b-ol, 5,24-cholestadien-3b-ol, 5-cholestan-25a-methyl-3b-ol, 5-cholestan-24b-methyl-3b-ol, 5-cholesten-24b-ethyl-3b-ol, and 5,22-cholestadien-24b-ethyl-3b-ol.

Claim 9 (original): The method of claim 5, wherein the lipid class is selected from the group consisting of lyso-phosphatidylcholine, sphingomyelin, phosphatidylcholine, phosphatidylserine, phosphatidylinositol, phosphatidylethanolamine, cardiolipin, free fatty acids, monoacylglycerides, diacylglycerides, triacylglycerides, and cholesterol esters.

Claim 10 (original): The method of claim 6, wherein the internal standard is selected from the group consisting of diheptadecanoyl phosphatidylcholine, dipentadecaenoyl phosphatidylethanolamine, tetraheptadecanoyl cardiolipin, diheptadecanoyl phosphatidylserine, pentadecanoyl sphingomyelin, heptadecanoyl lyso-phosphatidylcholine, triheptadecanoyl glyceride, pentadecaenoic acid, heptadecanoic cholesterol ester and free fucosterol.

Claim 11 (original): The method of claim 6, wherein the internal standard is heptadecanoic 1-heptadecenoyl-2-lyso-phosphatidylcholine for the lipid class of lysophospholipids, N-pentadecenoyl-D-erythro-sphingosylphorylcholine for the lipid class of sphingomyelin, 1,2-diheptadecenoylphosphatidylcholine for the lipid class of phosphatidylcholine, 1,2-diheptadecenoylphosphatidyl-ylethanolamine for the lipid class of phosphatidylethanolamine, 1,2-diheptadecenoylphosphatidylserine for the lipid class of phosphatidylserine, pentadecaenoic acid for the lipid class of free fatty acids, triheptadecaenoic acid for the lipid class of triacylglycerides, 1,1',2,2'-tetraheptadecaenoyl cardiolipin for the lipid class of cardiolipin, cholesteryl heptadecanoate for the lipid class of cholesterol esters and stigmaterol for the lipid class of free sterols.

Claim 12 (currently amended): The method of claim 2, wherein at least one of the quantitative lipid metabolite profiles is generated using a method comprising: separating a biological sample into fractions based on a plurality of lipid classes, wherein at least one quantitative internal standard is included for each lipid class; and measuring the quantity quantities of a plurality of individual lipid metabolites in the fractions.

Claim 13 (original): The method of claim 12, wherein the plurality of lipid classes comprises lyso-phosphatidylcholines, sphingomyelins, phosphatidylcholines, phosphatidylserines, phosphatidylinositols, phosphatidylethanolamines, cardiolipins, free fatty acids, monoacylglycerides, diacylglycerides, triacylglycerides, or cholesterol esters.

Claim 14 (original): The method of claim 12, wherein the plurality of lipid metabolites comprises at least one of tetradecanoic acid, pentadecanoic acid, hexadecanoic acid, heptadecanoic acid, octadecanoic acid, eicosanoic acid, docosanoic acid, tetracosanoic acid, 9-tetradecenoic acid, 9-hexadecenoic acid, 11-octadecenoic acid, 9-octadecenoic acid, 11-eicosenoic acid, 5,8,11-eicosatrienoic acid, 13-docosenoic acid, 15-tetracosenoic acid, 9,12,15-octadecatrienoic acid, 6,9,12,15-octadecatetraenoic acid, 11,14,17-eicosatrienoic acid, 8,11,14,17-eicositetraenoic acid, 5,8,11,14,17-eicosapentaenoic acid, 7,10,13,16,19-docosapentaenoic acid, 4,7,10,13,16,19-docosahexaenoic acid, 6,9,12,15,18,21-tetracoshexaenoic acid, 9,12-octadecadienoic acid, 6,9,12-octadecatrienoic acid, 11,14-eicosadienoic acid, 8,11,14-eicosatrienoic acid, 5,8,11,14-

eicosatetraenoic acid, 13,16-docsadienoic acid, 7,10,13,16-docosicetetraenoic acid, 4,7,10,13,16-docosapentaenoic acid, 9-trans-hexadecenoic acid, 9-trans-octadecenoic acid, 8-eicosaenoic acid, 5-eicosaenoic acid, plasmalogen fatty acids, 5b-cholestan-3b-ol, 5a-cholestan-3b-ol, 5-cholesten-3b-ol, 5,24-cholestadien-3b-ol, 5-cholestan-25a-methyl-3b-ol, 5-cholestan-24b-methyl-3b-ol, 5-cholesten-24b-ethyl-3b-ol, or 5,22-cholestadien-24b-ethyl-3b-ol, each as a compound or a component of a lipid molecule.

Claim 15 (original): The method of claim 12, wherein separating comprises chromatography.

Claim 16 (original): The method of claim 12, wherein measuring comprises chromatography.

Claim 17 (original): The method of claim 2, wherein displaying generates a web page for viewing.

Claims 18-55 (cancelled)

Claim 56 (previously presented): The method of claim 2, wherein an increase or decrease in the lipid metabolite is indicated on the heat map by a color and the relevant amount of the increase or decrease is indicated by the intensity of the color.

Claim 57 (previously presented): The method of claim 2, further comprising generating a written report.

Claim 58 (currently amended): The method of claim 2, wherein ~~one of the~~ second quantitative lipid metabolite profile[[s]] is a control lipomic profile.

Claim 59 (new): The method of claim 2, wherein the second quantitative lipid metabolite profile is a lipid metabolite profile from a second biological sample that is different from the first sample.